

ABSTRACT OF THE DISCLOSURE

The present invention provides a method for manufacturing a semiconductor substrate, comprising the step of: forming a first buffer Si layer on a substrate having a silicon surface; epitaxially growing, in sequence, a first strained SiGe layer and a first Si layer above the first buffer Si layer; implanting ions into the resulting substrate followed by annealing so as to relax the lattice of the first strained SiGe layer and to thereby providing tensile strain in the first Si layer and so that tensile strain is provided in the first Si layer; and epitaxially growing, in sequence, a second buffer Si layer and a second SiGe layer above the resulting substrate; and forming a second Si layer having tensile strain on the second SiGe layer.